


## Diet

If you want to maximise your chances of remaining free of bacterial and viral infection, and given the prevalence of Type B malnutrutrition, a comprehensive micro-nutritional support programme is a good starting point. But you can do more. Many micronutrients play an essential role in immune function (at least 20, according to Professor Ranjit Chandra at John Hopkins), but some may be more important than others.

The immune system can be divided into two distinct sub-systems; the innate and the acquired immune systems. The acquired immune system is the one with the memory function, and is involved in immunisation, allergy and auto-immunity. Once the acquired immune system has learned to recognise an enemy (after an initial infection or after vaccination), it remembers the enemy's characteristics. On second exposure to the threat the memory cells recognise it, and generate an immune response involving highly specific weapons such as antibodies. This is a powerful, sophisticated and highly specific system, but it is slow to mount and often insufficient to protect the host against the first onslaught of a virulent bacterium or virus.

The very complexity of the acquired immune system can cause problems. In autoimmune disease the acquired immune system confuses an element in the body with a pathogen which it partly resembles, and attacks the host's own tissues (as in rheumatoid arthritis, Multiple Sclerosis, Systemic Lupus, Hashimoto's thyroiditis etc). In allergy, the acquired immune system over-reacts to a stimulus such as animal dander or a species of pollen, and causes the well-known symptoms of allergic conjunctivitis, rhinitis or asthma.

The innate immune system is rather more basic. In evolutionary terms it is much older than the more sophisticated acquired immune system. It is less specific; and its key components are macrophages and Natural Killer (NK) cells. Broadly, these patrol the body and look out for anything that doesn't belong there. If macrophages spot a bacterium they swallow it whole and try to digest it. If NKcells recognise a virally infected cell or a cancer cell in the body they will kill it so that it cannot produce more viruses, or replicate.

Unlike the acquired immune system, the innate immune system is generally in a state of high alert. It springs into action the moment it recognises the presence of a pathogen. It is our first line of defence, while the acquired immune system is the second line. As the numbers of antibiotic resistant bacteria in our environment continue to increase, and the flu pandemic approaches, it makes good sense to ensure that your innate immune system is working as effectively as possible. But as with the acquired immune system, there is persuasive evidence that this first line of defence is too often in disrepair, due again to malnutrition.

As with the immune system overall, therefore, a comprehensive micronutrient support programme is a good foundation. Onto that

foundation you can add a second layer of very specific innate immune support agents. They include vitamin D, the trace element selenium, the plant extract beta-sitosterol, and the 1-3, 1-6 beta glucans derived from yeast, or, more expensively, from mushrooms such as the Shiitake.

Daily Mail

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